

**Water Utility Rate Alternatives - Project Impacts**

**Table Legend and Definitions:**

✓	Project funded at Option 3 level.
REDUCED	Project funding reduced from Option 3 level.
DELAYED	Project funding delayed from Option 3 level.
ELIMINATED	Project not funded.
Customer Experience	Provide world-class customer-centered service in every encounter, every day.
Reliability & Resiliency	Renew, replace, upgrade, modernize and extend the water and electric system infrastructure to ensure reliability is maintained or improved and that resilience to extreme events is maintained or improved.
Affordability	Keep water and electricity prices affordable and comply with Fiscal Policy.
○	No impact from change in project funding from Option 3.
↑	Positive impact from change in project funding from Option 3.
↓	Negative impact from change in project funding from Option 3.
↓↓	Significant impact from change in project funding from Option 3.
↓↓↓	Severe impact from change in project funding from Option 3.

**Water Utility**

Features and Costs by Option (10 Years, FY 18/19 through 27/28)										
<u>Project Category</u>	<u>Projects</u>	October 6, 2015 City Council Direction Option 3 - 8.6%	November 28, 2017 Revised Proposal Modified Option 1 - 5.7%	5.5% Average Rate Increase	5.0% Average Rate Increase	4.5% Average Rate Increase	4.0% Average Rate Increase	3.5% Average Rate Increase	3.0% Average Rate Increase	2.5% Average Rate Increase
<b>Water Supply</b>  <i>Projects to increase water supply through direct supplement and augmentation of groundwater basins</i>	Recycled Water Phase 1 (600 AF)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Recycled Water Phase 2 (2,800 AF)	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
	Santa Ana River Rubber Dam - Off-Stream Recharge (1,000 AF)	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
	Seven Oaks Dam - Enhanced Recharge (1,000 AF)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Santa Ana River Rubber Dam - In-Stream Recharge (2,000 AF)	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
	Recycled Water - Arlington Avenue Reach (1,600 AF)	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
	Seven Oaks Dam Active Recharge Project (3,000 AF)	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
	Local stormwater capture projects, various locations (2,500 AF)	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
<b>Water Supply 10-year costs</b>		<b>\$96,558,000</b>	<b>\$10,791,000</b>	<b>\$10,791,000</b>	<b>\$10,791,000</b>	<b>\$10,791,000</b>	<b>\$10,791,000</b>	<b>\$10,791,000</b>	<b>\$10,791,000</b>	<b>\$10,791,000</b>
<b>Qualitative Impacts to Utility 2.0 Goals</b>	<b>Customer Experience :</b>	○	↓	↓	↓	↓	↓	↓	↓	↓
	<b>Reliability &amp; Resiliency :</b>	○	↓↓↓	↓↓↓	↓↓↓	↓↓↓	↓↓↓	↓↓↓	↓↓↓	↓↓↓
	<b>Affordability :</b>	○	↑	↑	↑	↑	↑	↑	↑	↑
<b>8.6%</b> -These critical water supply project generate additional acre feet (AF) of water supply to pump and serve to our customers.										
<b>5.7% and below</b> -Eliminate six water supply projects, totaling 12900 AF, to increase affordability. If a lower rate increase scenario is selected, opportunities to develop additional water supply for Riverside will be brought to the Board and Council on a case-by-case basis for consideration. If projects are not able to be implemented when needed, costs will increase due to having to purchase additional water supplies from MWD.										

Attachment 5: Water Utility Rate Alternatives – Project Impacts

Features and Costs by Option (10 Years, FY 18/19 through 27/28)										
Project Category	Projects	October 6, 2015 City Council Direction Option 3 - 8.6%	November 28, 2017 Revised Proposal Modified Option 1 - 5.7%	5.5% Average Rate Increase	5.0% Average Rate Increase	4.5% Average Rate Increase	4.0% Average Rate Increase	3.5% Average Rate Increase	3.0% Average Rate Increase	2.5% Average Rate Increase
<b>Water Treatment</b>  <i>Water treatment plants to ensure safe, clean water supply.</i>	John W. North filter replacement	✓	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED
	Construct North Waterman Treatment Plant	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
<b>Water Treatment 10-year costs</b>		<b>\$19,748,000</b>	<b>\$1,296,000</b>	<b>\$1,296,000</b>	<b>\$1,296,000</b>	<b>\$1,296,000</b>	<b>\$1,296,000</b>	<b>\$1,296,000</b>	<b>\$1,296,000</b>	<b>\$1,296,000</b>
<b>Qualitative Impacts to Utility 2.0 Goals</b>	<b>Customer Experience :</b>	○	↓	↓	↓	↓	↓	↓	↓	↓
	<b>Reliability &amp; Resiliency :</b>	○	↓	↓	↓	↓	↓	↓	↓	↓
	<b>Affordability :</b>	○	↑	↑	↑	↑	↑	↑	↑	↑
<p><b>8.6%</b>                      -Replace all five John W. North Treatment Plant filters over 10 years, per the manufacture's specifications.                      -Construction of the new North Waterman Treatment Plant will be required when water quality regulations become more stringent, anticipated to occur over the next 5 years. Staff estimates funding for the treatment plant would require two 2% annual rate increases.</p> <p><b>5.7% and below</b>                      -Replace only 3 of 5 John W. North Treatment Plant filters over 10 years.                      -Eliminate construction of new North Waterman Treatment Plant. If the treatment plant is not funded, purchases of imported water may be required to meet retail demand.</p>										

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Well Projects  <i>Water supply wells in Riverside and San Bernardino groundwater basins.</i>	Well rehabilitation	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Drinking water well replacements	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Irrigation well replacement	✓	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED
<b>Well Projects 10-year costs</b>		<b>\$28,777,000</b>	<b>\$30,499,000</b>	<b>\$30,499,000</b>	<b>\$30,499,000</b>	<b>\$30,499,000</b>	<b>\$30,499,000</b>	<b>\$30,499,000</b>	<b>\$30,499,000</b>	<b>\$30,499,000</b>
Qualitative Impacts to Utility 2.0 Goals	Customer Experience :	○	○	○	○	○	○	○	○	○
	Reliability & Resiliency :	○	○	○	○	○	○	○	○	○
	Affordability :	○	○	○	○	○	○	○	○	○
<p><b>8.6%</b>                      -Rehabilitate 3 to 5 wells per year over 10 years                      -Replace 1 drinking water well every other year for 10 years                      -Replace 1 irrigation well every 5 years for 10 years</p> <p><b>5.7% and below</b>                      -Defer well projects to later years to increase affordability. Due to inflation, deferring projects will require more capital in the future to complete the same rehabilitation/replacement projects, decreasing long-term affordability.</p>										

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Features and Costs by Option (10 Years, FY 18/19 through 27/28)											
Project Category	Projects	October 6, 2015 City Council Direction Option 3 - 8.6%	November 28, 2017 Revised Proposal Modified Option 1 - 5.7%	5.5% Average Rate Increase	5.0% Average Rate Increase	4.5% Average Rate Increase	4.0% Average Rate Increase	3.5% Average Rate Increase	3.0% Average Rate Increase	2.5% Average Rate Increase	
Transmission Pipelines	Minor rehabilitation and capitalized maintenance (\$6.7M Total)	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Techite Pipeline replacement and upsizing	✓	✓	✓	✓	✓	✓	✓	REDUCED	REDUCED	
	Arterial pipelines 16" to 72" diameter for water supply from San Bernardino and Riverside basins and in system transmission	Industrial Booster Station transmission feeder pipeline	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Park Avenue Transmission Main replacement and upsizing	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Victoria Avenue Transmission Main replacement and upsizing	✓	ELIMINATED	ELIMINATED						
<b>Transmission 10-year costs</b>		<b>\$77,338,000</b>	<b>\$65,823,000</b>	<b>\$65,823,000</b>	<b>\$65,823,000</b>	<b>\$65,823,000</b>	<b>\$65,823,000</b>	<b>\$65,545,000</b>	<b>\$52,499,000</b>	<b>\$45,507,000</b>	
Qualitative Impacts to Utility 2.0 Goals	Customer Experience :	○	↓	↓	↓	↓	↓	↓	↓↓	↓↓↓	
	Reliability & Resiliency :	○	○	○	○	○	○	○	↓↓	↓↓↓	
	Affordability :	○	↑	↑	↑	↑	↑	↑	↑	↑	
<p><b>8.6%</b>                      -Replacement and upsizing of 4.4 miles of Techite Pipeline (\$38.6M) will improve reliability and resiliency of the water system and maintain ability to wheel and sell surplus water to outside agencies.                      -Victoria Avenue Transmission Main replacement and upsizing project will improve reliability and resiliency and the ability to move water within the system.</p> <p><b>5.7% and below</b>                      -Eliminate Victoria Avenue project, which will reduce reliability and the ability to move water within the system.</p> <p><b>3.0% and below</b>                      -Reduce Techite Pipeline project by 32% to 3 miles, which reduces reliability and resiliency of the water system and will impact the City's ability to wheel and sell surplus water to outside agencies.</p> <p><b>2.5% and below</b>                      -Reduce Techite Pipeline project by 50% to 2.2 miles.</p>											

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Features and Costs by Option (10 Years, FY 18/19 through 27/28)										
Project Category	Projects	October 6, 2015 City Council Direction Option 3 - 8.6%	November 28, 2017 Revised Proposal Modified Option 1 - 5.7%	5.5% Average Rate Increase	5.0% Average Rate Increase	4.5% Average Rate Increase	4.0% Average Rate Increase	3.5% Average Rate Increase	3.0% Average Rate Increase	2.5% Average Rate Increase
Distribution Pipelines	Numerous (hundreds) of minor rehabilitation and capitalized maintenance service calls	✓	✓	✓	✓	✓	✓	✓	✓	✓
	<i>Neighborhood pipelines 6" to 12" diameter for water service and fire fighting</i>	✓	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED
Distribution Pipeline 10-year costs		\$153,209,000	\$117,790,000	\$117,790,000	\$117,790,000	\$117,790,000	\$115,455,000	\$99,091,000	\$97,295,000	\$89,833,000
Qualitative Impacts to Utility 2.0 Goals	Customer Experience :	○	↓	↓	↓	↓	↓↓	↓↓↓	↓↓↓	↓↓↓
	Reliability & Resiliency :	○	↓	↓	↓	↓	↓↓	↓↓↓	↓↓↓	↓↓↓
	Affordability :	○	↑	↑	↑	↑	↑	↑	↑	↑
<p><b>8.6%</b> -The American Water Works Association (AWWA) and other industry leaders recommend pipelines be replaced at a 75-year replacement cycle; for Riverside, a 75-year replacement cycle would require replacing 11.5 miles of pipeline per year. RPU's pipeline replacement over the past 10 years (FY 2008-2017) has averaged 6.5 miles per year, which calculates to a 130-year replacement cycle. -At 8.6%, distribution pipeline replacement would average 9.0 miles per year, which calculates to a 100-year replacement cycle.</p> <p><b>5.7% and below</b> -Reduce annual distribution pipeline replacements by 45% to 4.9 miles (on average), which calculates to a 170-year replacement cycle. Years 1-5: average replacement 3.5 miles; Years 6-10: average replacement 6.4 miles.</p> <p><b>4.0% and below</b> -Reduce annual distribution pipeline replacements by 47% to 4.8 miles (on average), which calculates to a 180-year replacement cycle. Years 1-5: average replacement 3.2 miles; Years 6-10: average replacement 6.4 miles.</p> <p><b>3.5% and below</b> -Reduce annual distribution pipeline replacements by 58% to 3.8 miles (on average), which calculates to a 220-year replacement cycle. Years 1-5: average replacement 2.1 miles; Years 6-10: average replacement 5.4 miles.</p> <p><b>3.0% and below</b> -Reduce annual distribution pipeline replacements by 60% to 3.6 miles (on average), which calculates to a 230-year replacement cycle. Years 1-5: average replacement 1.7 miles; Years 6-10: average replacement 5.6 miles.</p>										

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<p><b><u>2.5% and below</u></b>                      -Reduce annual distribution pipeline replacements by 65% to 3.1 miles (on average), which calculates to a 270-year replacement cycle. Years 1-5: average replacement 1.0 miles; Years 6-10: average replacement 5.2 miles.</p>										

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<b>Distribution Facilities</b>  <i>Water distribution and distribution network edge equipment to deliver and meter water throughout system</i>	Pump station minor rehabilitation and capitalized maintenance (\$2.7M Total)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Pressure control station minor rehabilitation and capitalized maintenance	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Water meter replacement and large meter rehabilitation	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Polk/Magnolia Pressure Control Station replacement	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Canyon Crest Booster Station replacement and relocation	✓	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED
	Crest Booster Station replacement and relocation (2020-21 Start)	✓	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED
<b>Distribution Facilities 10-year costs</b>		<b>\$18,802,000</b>	<b>\$19,268,000</b>	<b>\$19,268,000</b>	<b>\$19,268,000</b>	<b>\$19,268,000</b>	<b>\$19,268,000</b>	<b>\$19,268,000</b>	<b>\$19,268,000</b>	<b>\$19,467,000</b>
<b>Qualitative Impacts to Utility 2.0 Goals</b>	<b>Customer Experience :</b>	○	○	○	○	○	○	○	○	○
	<b>Reliability &amp; Resiliency :</b>	○	○	○	○	○	○	○	○	○
	<b>Affordability :</b>	○	○	○	○	○	○	○	○	○
<b>5.7% and below</b> -Delay pressure control station maintenance program 2 years and Canyon Crest and Crest Booster Station projects 2 years to increase affordability. Due to inflation, deferring projects will require more capital to complete the same rehabilitation/replacement projects, decreasing long-term affordability.										
<b>2.5% and below</b> -Delay start date of the Crest Booster Station project by 3 years (2023-2024).										

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Reservoir Projects	Minor rehabilitation and capitalized maintenance (\$2M Total)	✓	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED	REDUCED
	System storage for emergency, operational and system efficiency improvements									
Reservoir 10-year costs		\$3,977,000	\$2,440,000	\$2,440,000	\$2,440,000	\$2,440,000	\$2,440,000	\$2,440,000	\$2,440,000	\$1,848,000
Qualitative Impacts to Utility 2.0 Goals	Customer Experience :	○	↓	↓	↓	↓	↓	↓	↓	↓
	Reliability & Resiliency :	○	↓	↓	↓	↓	↓	↓	↓	↓↓
	Affordability :	○	↑	↑	↑	↑	↑	↑	↑	↑
<p><b>5.7% and below</b> -Maintenance is reduced by 20% to increase affordability.</p> <p><b>2.5% and below</b> -Maintenance is reduced by 40% to increase affordability.</p>										

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<b>System Automation</b>  <i>Technology, security and system automation tools and applications to improve cyber security and overall efficiency.</i>	Operational Technology planning, management, and cyber & physical security improvements	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Contact Center Interactive Voice Response System and Customer Web Portal	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	
	Work, Asset and Inventory Management Systems	✓	DELAYED	ELIMINATED							
	Development of Geographic Information System (GIS) advanced analytical tools, new applications	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	
	Mobile applications to support Work Management System, Customer Relationship Management system, inspection, Outage Management and GIS Integration	✓	DELAYED/ REDUCED	DELAYED/ REDUCED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	
	Operational Data Management System enhancements and business analytics to support data integration and reporting (KPI dashboarding)	✓	DELAYED/ REDUCED	ELIMINATED							
	Network Communications Systems to improve communication backbone and improve system functionality, efficiency and cybersecurity	✓	✓	✓	✓	✓	DELAYED/ REDUCED	DELAYED/ REDUCED	REDUCED	REDUCED	REDUCED
	Land-Mobile Radio system to improve office to field and field to field communication to support worker safety and emergency response	✓	REDUCED	DELAYED/ REDUCED	DELAYED/ REDUCED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED

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	Advanced Metering Infrastructure (AMI) and Meter Data Management System to integrate AMI data and support customer facing applications and web integration of CIS	✓	DELAYED	DELAYED	DELAYED	DELAYED/ REDUCED	DELAYED/ REDUCED	DELAYED/ REDUCED	ELIMINATED	ELIMINATED
	Automated Vehicle Locating to improve fleet efficiency and support worker/crew locations for safety and outage management efficiencies	✓	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
	Distribution Automation System to support leak detection, water quality and pressure sensing	✓	DELAYED	DELAYED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED	ELIMINATED
	Supervisory Control and Data Acquisition (SCADA) to improve system automation, efficiency and cyber security	✓	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED	DELAYED
<b>System Automation 10-year costs</b>		<b>\$43,118,000</b>	<b>\$39,209,000</b>	<b>\$36,875,000</b>	<b>\$30,244,000</b>	<b>\$23,108,000</b>	<b>\$16,067,000</b>	<b>\$14,760,000</b>	<b>\$11,818,000</b>	<b>\$11,818,000</b>
<b>Qualitative Impacts to Utility 2.0 Goals</b>	<b>Customer Experience :</b>	○	↓	↓	↓	↓↓	↓↓	↓↓	↓↓	↓↓
	<b>Reliability &amp; Resiliency :</b>	○	↓	↓	↓	↓	↓↓	↓↓	↓↓	↓↓
	<b>Affordability :</b>	○	↑	↑	↑	↑	↑	↑	↑	↑

**5.7% and below**

-Overall, the technology budget was reduced in each scenario to add funding to underground infrastructure projects.

-Customer Engagement Portal and Interactive Voice Response System for customer self-service are eliminated, resulting in significant impact to customer service due to longer response times, abandoned calls, and lack of intuitive self-service options.

-Current city-wide project underway to convert outdated Geographic Information System (GIS) to a modern system continues, but all future updates, upgrades, or enhancements to GIS are eliminated.

-Reduce scope of Mobile Applications for the field work management system is reduced, resulting in inefficient field operations.

-Deployment of commercial/industrial Advanced Metering Infrastructure (AMI) meters (2-way communication) is delayed by 1 year, and deployment of residential AMI (2-way communication) meters is delayed by 3 years. This results in a negative impact on customer experience and operational efficiencies.

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<u>Project Category</u>	<u>Projects</u>	October 6, 2015 City Council Direction Option 3 - 8.6%	November 28, 2017 Revised Proposal Modified Option 1 - 5.7%	5.5% Average Rate Increase	5.0% Average Rate Increase	4.5% Average Rate Increase	4.0% Average Rate Increase	3.5% Average Rate Increase	3.0% Average Rate Increase	2.5% Average Rate Increase
<p><b><u>5.5% and below</u></b></p> <ul style="list-style-type: none"> <li>-Eliminate Work, Asset and Inventory Management Systems resulting in a negative impact to reliability and customer service, higher operating costs, and longer repair cycle times.</li> <li>-Eliminate deployment of future phases of the Operations Data Management System (development of Advance Analytics, Enterprise Performance Dashboards), resulting in a negative impact on operational efficiencies.</li> <li>-Reduce scope of the network communication for the water Supervisory Control and Data Acquisition (SCADA) system. This will have a some impact on system reliability.</li> <li>-Deployment of residential AMI meters is extended to 7 years and the scope is reduced by 12%. This results in a further negative impact on customer experience and operational efficiencies.</li> </ul> <p><b><u>5.0% and below</u></b></p> <ul style="list-style-type: none"> <li>-Eliminate Mobile Applications for the field work management system resulting in continued reliance on paper and inefficient manual processes.</li> <li>-Deployment of residential AMI meters is delayed by 5 years and the scope is reduced by 13%. This results in a further negative impact on customer experience and operational efficiencies.</li> </ul> <p><b><u>4.5% and below</u></b></p> <ul style="list-style-type: none"> <li>-Deployment of commercial/industrial AMI meters is delayed by 6 years, and deployment of residential AMI meters is delayed by 8 years and the scope reduced by 46%. This results in a further negative impact on customer experience and operational efficiencies.</li> </ul> <p><b><u>4.0% and below</u></b></p> <ul style="list-style-type: none"> <li>-Deployment of commercial/industrial AMI meters is delayed by 7 years, and deployment of residential AMI meters is delayed by 10 or more years and the scope reduced by 82%. This results in a further negative impact on customer experience and operational efficiencies.</li> <li>-Reduce scope of the network communication for the water SCADA system. Our current non-redundant legacy communication system is beyond its end of life. Lost and failure of the communication will have a significant impact SCADA systems reliability.</li> <li>-Delay SCADA deployment for four years. Our current 20-year-old isolated, non-redundant legacy with no support from the vendor and it has already passed its useful life and introduces risk to the organization – Lost or failure of the system could impact on system reliability.</li> </ul> <p><b><u>3.0% and below</u></b></p> <ul style="list-style-type: none"> <li>-Eliminate residential AMI deployment, resulting in a negative impact on customer experience and operational efficiencies.</li> </ul>										
<b>Total</b>		<b>\$441,527,000</b>	<b>\$287,116,000</b>	<b>\$284,782,000</b>	<b>\$278,151,000</b>	<b>\$271,015,000</b>	<b>\$261,639,000</b>	<b>\$243,690,000</b>	<b>\$225,906,000</b>	<b>\$211,059,000</b>